CBA
Clinical Business Area

# Tele-Health Approach to MHS Optimization and Population Health

## TRICARE Conference
## 2 February 2000


CAPT Kathleen Fisher, MC, USN
Department Head, Clinical Operations
TRICARE Southern California, Region Nine

CDR Bobbi Crann, NC, USN
Telemedicine Clinical Coordinator
TRICARE Southern California, Region

Lt Col Carol Randell, USAF, NC
Chief Quality Improvement/Risk Management
Clinical Business Area/CHCS II Program Office

Kris Large, RN
Program Director for Quality and Utilization Management

# Project Background

- Initiative stems from 1997 GAO Report on Telemedicine, encouraging the DoD to share and partner with civilian healthcare entities in order to apply telemedicine lessons learned to the private healthcare arena
- Stakeholders
  - TRICARE Southern California, Region Nine
  - Strategic Monitored Services
  - Clinical Business Area (Health Affairs)

# Project Background

- First “Cooperative Agreement” arrangement within the Military Health System but not within DoD
- Both civilian and military (government) agency contribute resources to the project for a mutual benefit

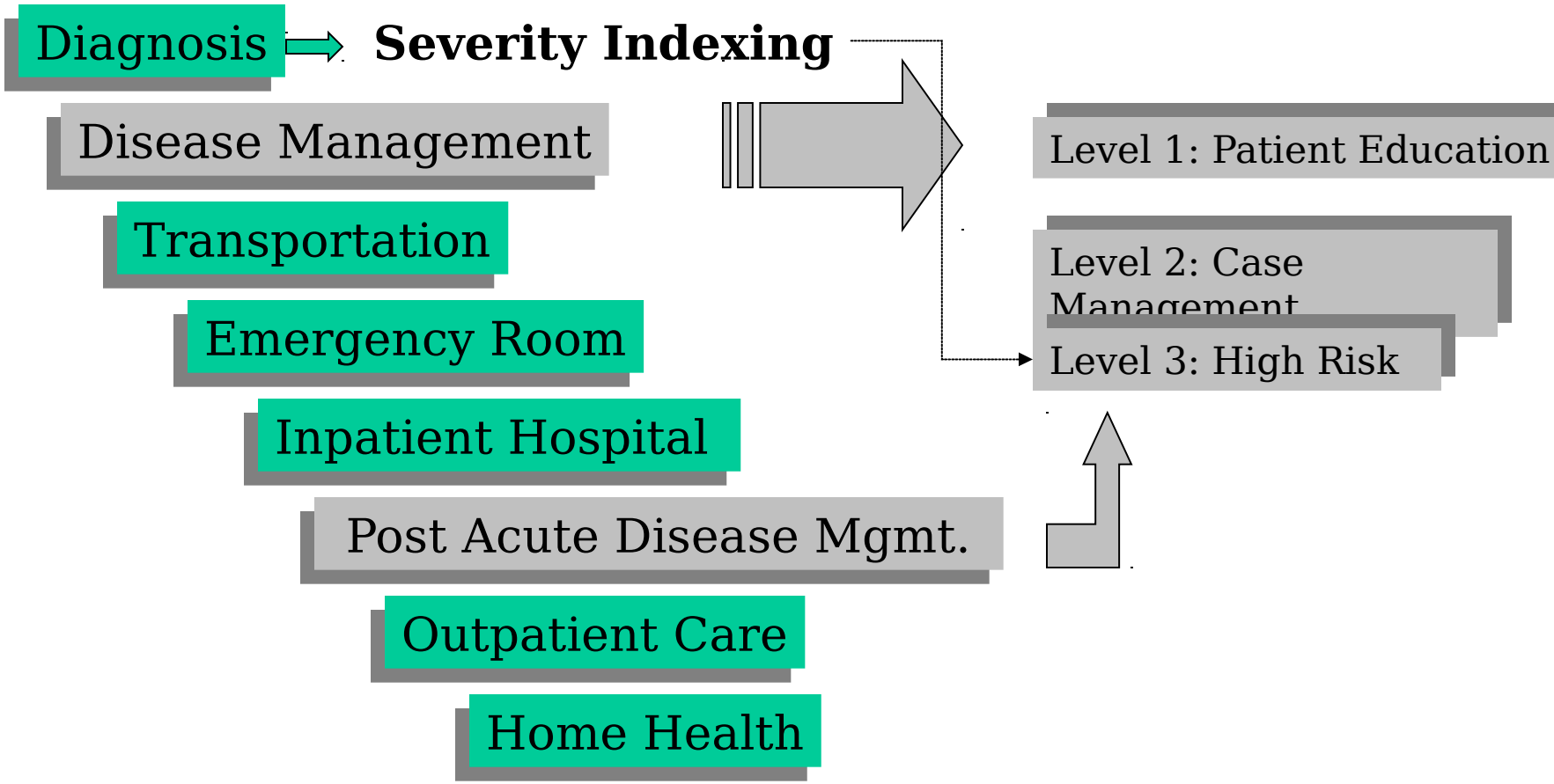
# Disease Management

- Universally accepted definition of Disease Management Lacking

- Program Definition - An integrated system of interventions, measurements and refinements of health care delivery designed to optimize clinical and economic outcomes within a specific population

# Continuum of Care

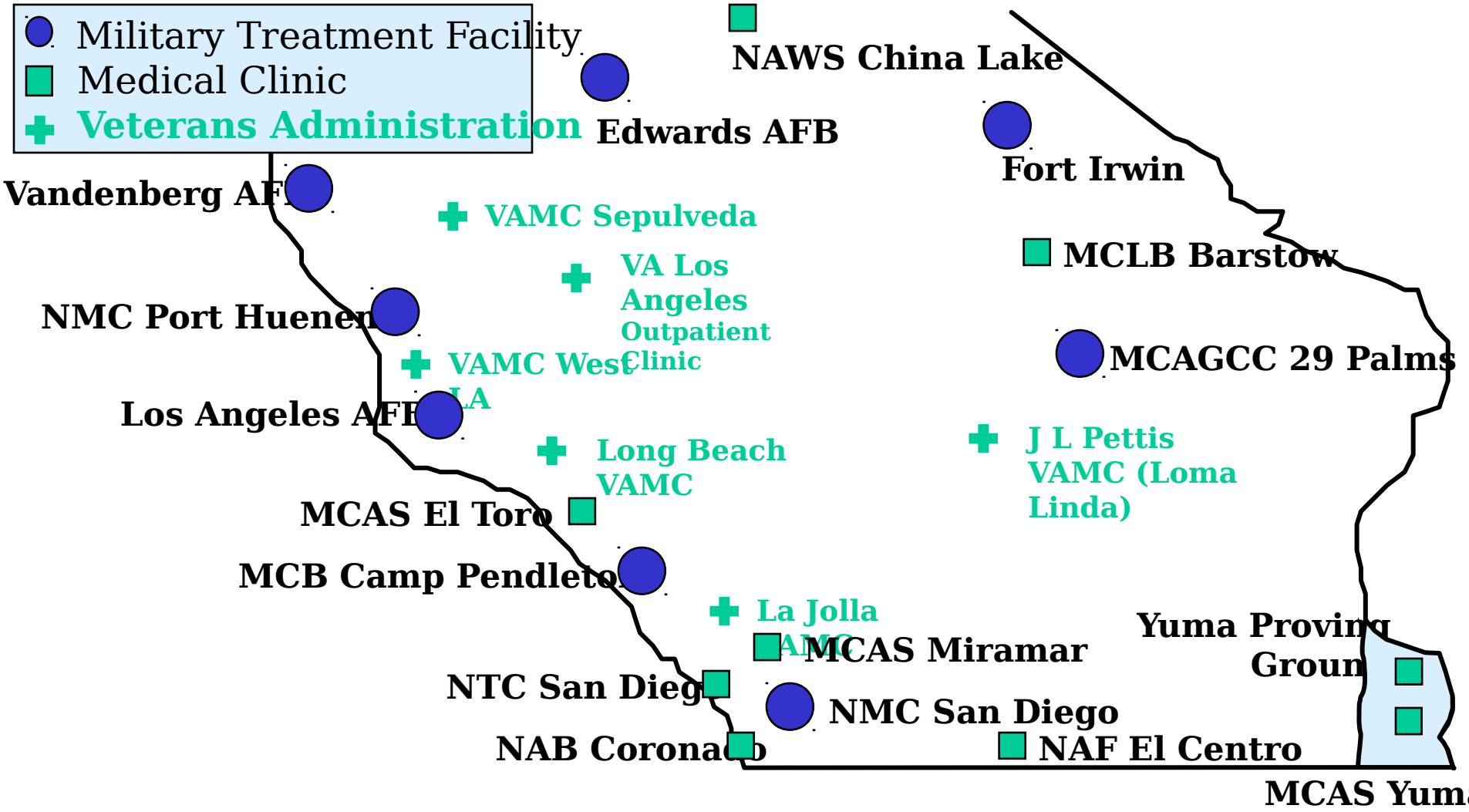
## *Disease Management: Where Does It Fit?*



# Selection of Diseases to Manage

- Increased Morbidity/Mortality
- High cost / High Volume
- Natural course of Disease Understood for interventions at critical points
- Region Nine - Adult COPD and Pediatric Asthma

# Region Nine


Military Treatment Facility
Medical Clinic
Veterans Administration
NAWS China Lake
Edwards AFB
Fort Irwin
Vandenberg AFB
VAMC Sepulveda
MCLB Barstow
VA Los Angeles Outpatient Clinic
NMC Port Hueneme
MCAGCC 29 Palms
VAMC West LA
Los Angeles AFB
J L Pettis VAMC (Loma Linda)
Long Beach VAMC
MCAS El Toro
MCB Camp Pendleton
La Jolla VAMC
Yuma Proving Ground
MCAS Miramar
NTC San Diego
NMC San Diego
NAB Coronado
NAF El Centro
MCAS Yuma

# Outcomes Analysis Focus

- Healthcare Utilization Rates
- Overall Healthcare Cost
- Patient/Provider Satisfaction
- Functional Health Status
- Clinical Outcomes
- Project Lessons Learned

**Pediatric Asthma patient from previous project**

# Selection of High Risk Patients

**DATA MINING**

# Selection of Diseases to Manage

- Increased Morbidity/Mortality
- High cost / High Volume
- Natural course of Disease Understood for interventions at critical points
- Region Nine - COPD and Pediatric Asthma

# Considerations in Scope of Patient Selection

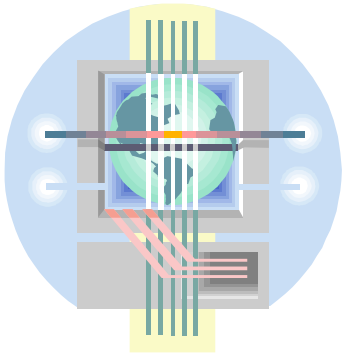
- 10,000 Network Providers plus Direct care Providers
- Geographically remote areas
- Need to make contact with all providers who would have patients in program
- Logistics for installation of in-home equipment
- Time constraints of program start-up
- Budget for program

# Final Patient Selection Scope

- All were Prime with majority in Direct Care
- A few Prime from NAVCares and selected Network providers
- Since COPD age related, allowed TRICARE Senior Prime participants

# Data Mining Sources

- SIDR
- SADR
- PHARMACY
- CLAIMS
- DEERS
- ENROLLMENT FILES



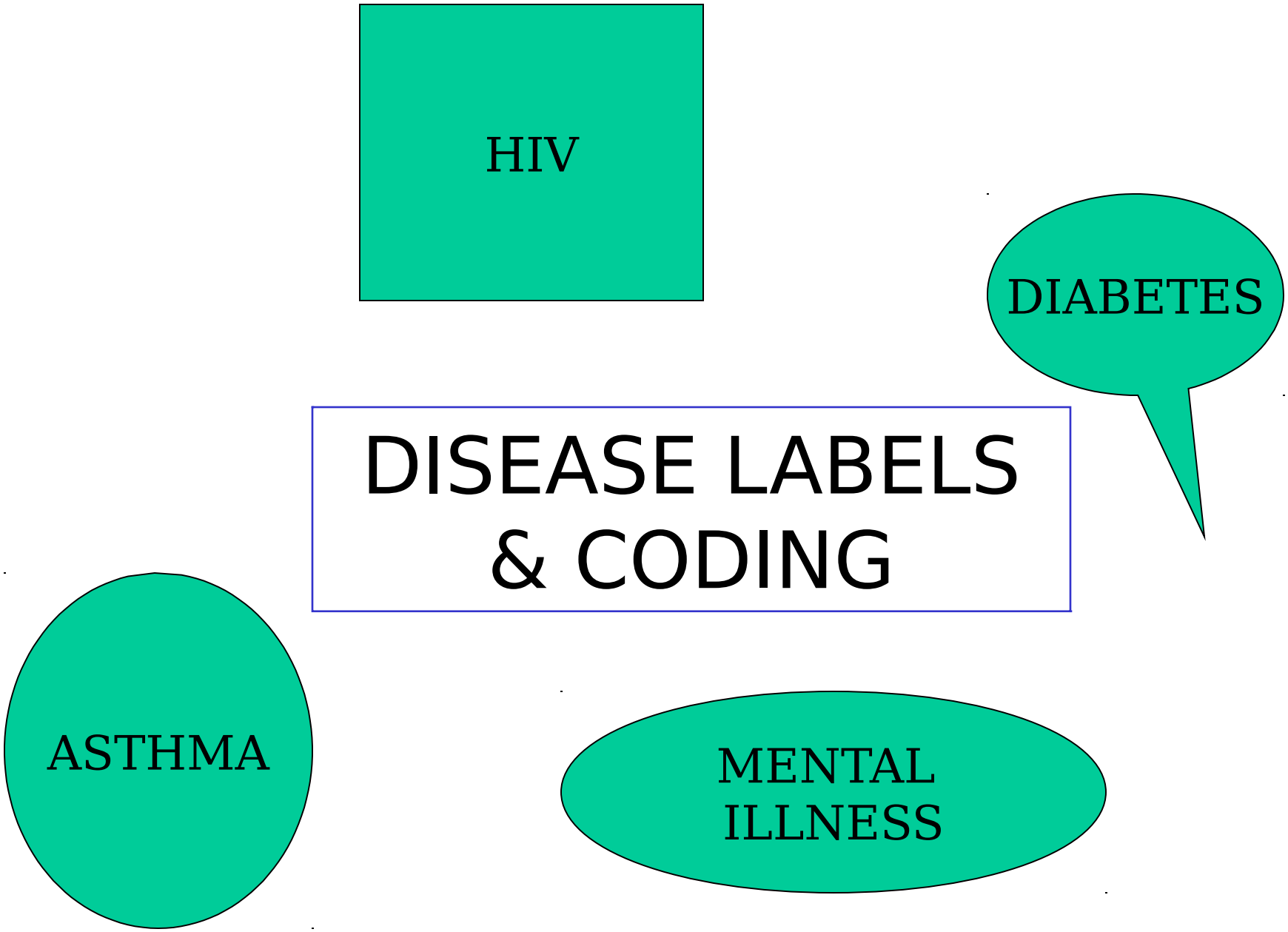
# OBSTACLES RELATED TO DATA MINING & FINDING CASES FOR PROGRAM

# Accuracy of Coding

- Some cases selected for participation did not have “disease”
- Inaccurate sequence of coding for chief reason of admission/visit clouded utilization picture (Commorbidities associated with COPD)

# Completion/Accuracy of SADRs

- Impacts determination of utilization rates by giving incomplete picture
- Impacts cost analysis of disease management initiatives


HIV
DIABETES
DISEASE LABELS
& CODING
ASTHMA
MENTAL
ILLNESS

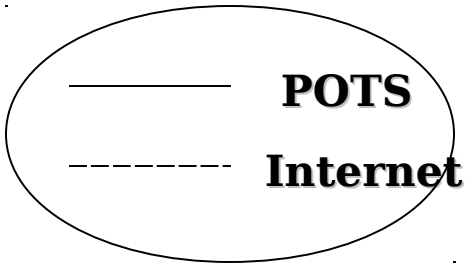
# Claims Data

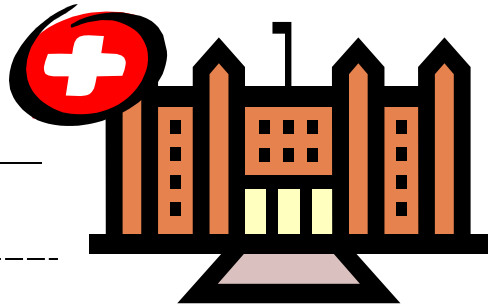
- Needed for cross referencing selected direct care patients use of Network/Non-Network ER
- A requirement if patients from Network PCMs

# Finding the PCM's

Ah! What Can I Say???

# Architecture

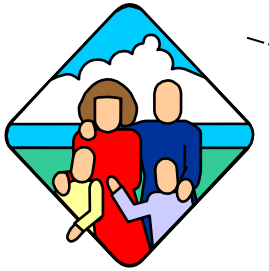




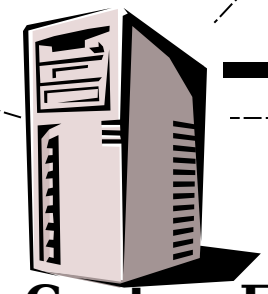
MD Providers:
Civilian &Military
MD's
in Southern CA
(Approx. 90)

(7) Providers:DM Team
in MD, GA, CA

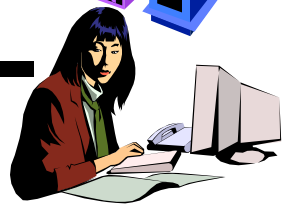
1-800
Demand



DoD Patients: CA



Data Center: Frederick, MD



Admin: Maryland &
Tricare Region 9

# The Process

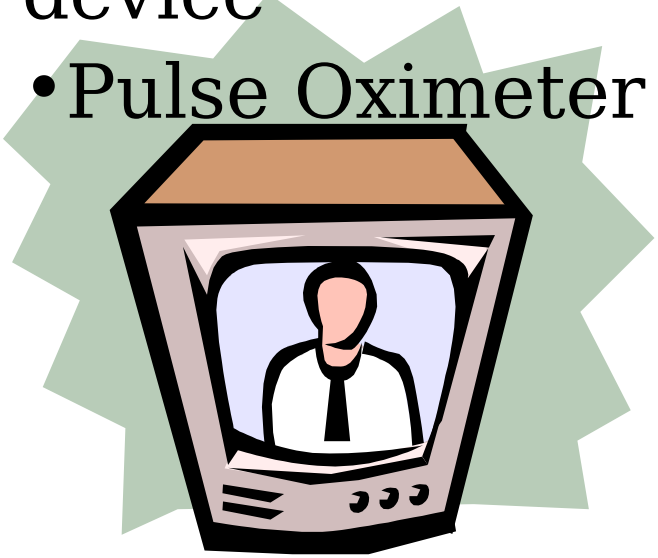
- Patients divided into two groups:
  - Level 3 = Telemedicine
  - Level 2 = Telephone

- Nurse Case Manager initiated call to patient
- Collects physical parameters – O2 sat, BP, HR, etc.

# Patient's System

- *Web TV* equivalent to access internet.
  (No computer in home unless patient had their own computer prior)
- Internet Access for Patient Education, Disease information, activity logs, surveys
- Interactive voice & video over pt's own TV

- Vital Signs Monitor
- Airway Measurement device
- Pulse Oximeter



# VideoPhone used to interact With the Nurse Case Manager

# Challenges of the Program

- Personnel reluctant to use the system
- Equipment failure
- Restricted software requirements
- Interface with IT team

# Meeting the Challenges

- One on one training via phone/on-site
- Training in own home using own equipment
- Team leaders meeting with provider physicians
- Store replacement equipment in geographic area

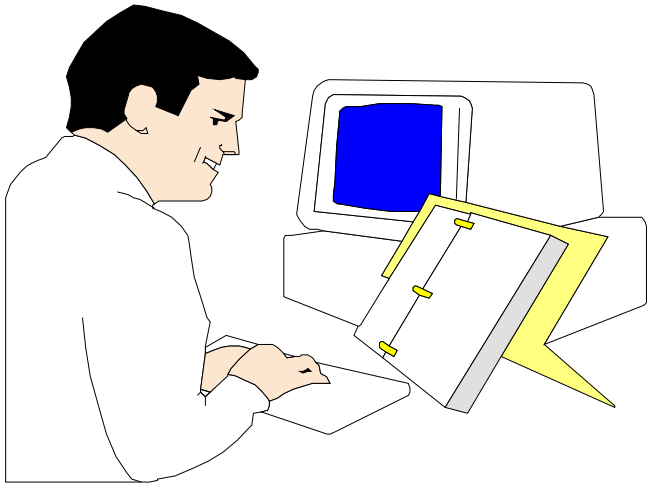
# Lessons Learned

- Doctors' Lounge not readily used by the Providers
  - No access to PC's/Internet
  - Difficult to navigate
- On-site coordinator for training/equipment issues
- Provide supplemental information for patients not accessing the computer

Tele-ENT in Region Nine

# Study Outcomes

- Metrics
- Lessons Learned

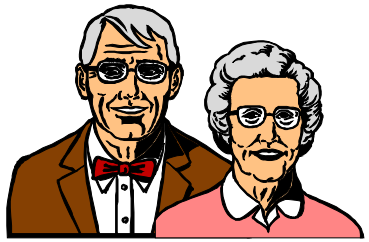


# Metrics

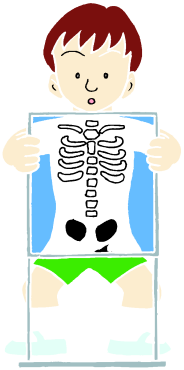
- Demographics
- Utilization
- Clinical Parameters
- Health-related Quality of Life
- Patient Satisfaction

# Demographics

| | Asthma | COPD |
|---|---|---|
| Number enrolled | 65 | 59 |
| Age (mean) | 9.1 | 67.7 |
| Age (range) | 4-16 | 46 - 84 |
| Co-morbidities | 10.2% | 86.4% |



# Hospitalizations: Asthma



| | PRE | POST |
|---|---|---|
| All diagnoses | 10 | 9 |
| Asthma diagnosis | 3 | 5 |
| LOS | 2.2 | 2.2 |

# Hospitalizations: COPD

| | PRE | POST |
|---|---|---|
| All diagnoses | 29 | 23 |
| COPD diagnosis | 15 | 7* |
| LOS | 7.8 | 5.0 |

*p< .05

# ER Visits: Asthma

| | PRE | POST |
|---|---|---|
| All diagnoses | 23 | 20 |
| Asthma diagnosis | 13 | 17 |

# ER Visits: COPD

| | PRE | POST |
|---|---|---|
| All diagnoses | 30 | 36 |
| Asthma diagnosis | 14 | 14 |

# Clinical: Asthma

| | PRE | POST |
|---|---|---|
| Peak Flow (mean) | 308 | 334 |
| Severity of illness score | 1.98 | 1.37* |

* p< .05

# Clinical: COPD

| | PRE | POST |
|---|---|---|
| FEV1 (mean) | 1.09 | 1.25* |
| Severity of illness score | 2.29 | 1.71* |

* p< .05

# Health-Related Quality of Life

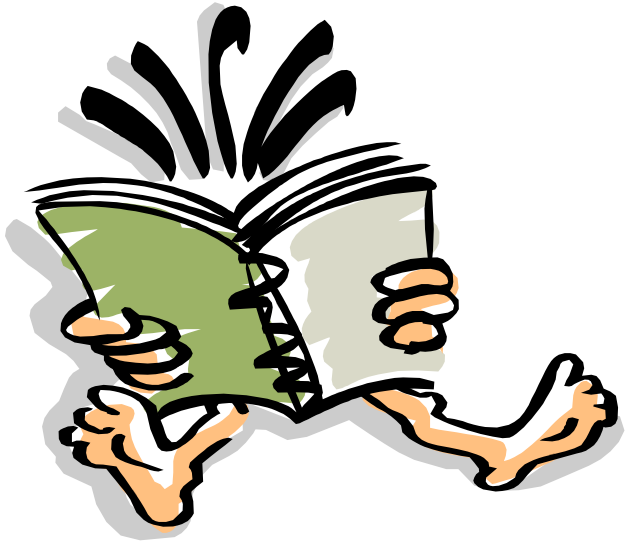
| | PRE | POST |
|---|---|---|
| Asthma | | |
| Peds QL (parent) | 76.24 | 82.02* |
| Peds QL (child) | 75.73 | 82.15* |
| COPD | | |
| QWB | 0.478 | 0.487 |

* p<.05

# Patient Satisfaction

| | PRE | POST |
|---|---|---|
| Asthma | 2.3 | 2.04 |
| COPD | 1.69 | 1.79 |

# Lessons Learned

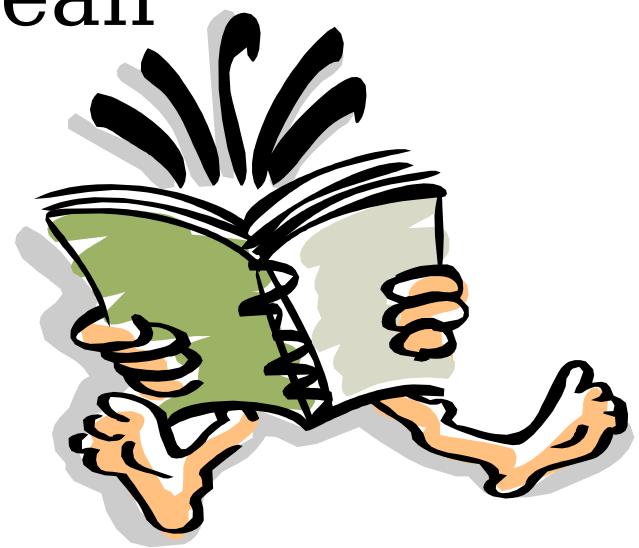


# Sample Size

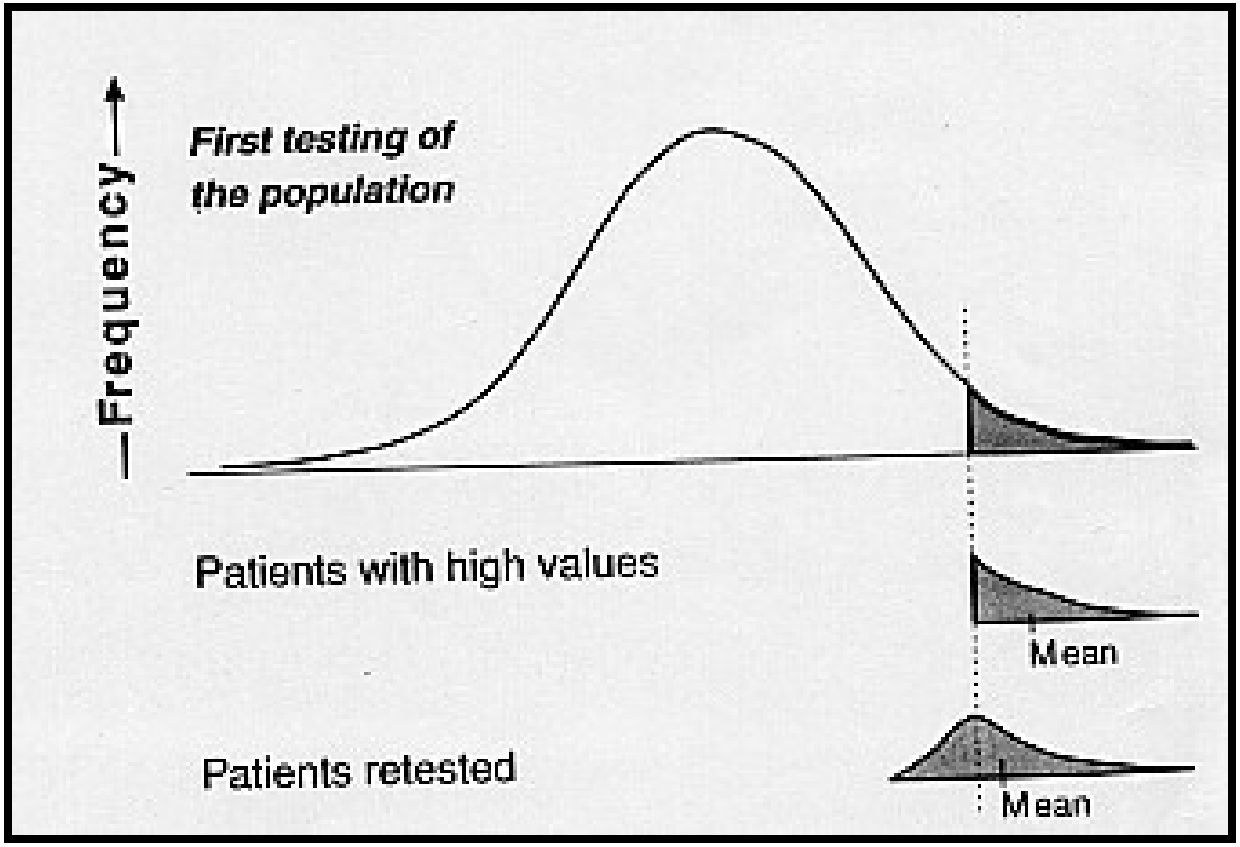
- Inversely related to effect size
- Inversely related to the event rate

# Control Groups

- Patients serving as their own controls
- Regression to the mean
- Other models

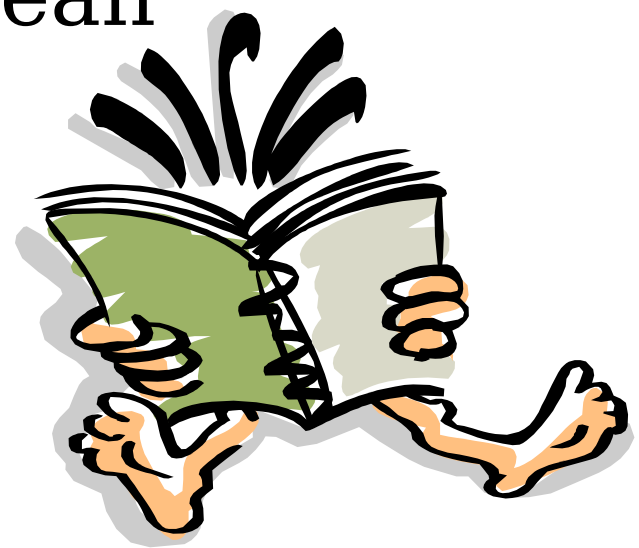


# Regression to the Mean



# Control Groups

- Patients serving as their own controls
- Regression to the mean
- Other models



# Gap analysis

- Traditional selection criteria
- Good benchmarks
- Perceived importance
- Resources necessary to get from “here” to “there”

# What is the purpose of Population-Based Disease Management?